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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/523,976      | 02/08/2005  | Toshihiro Tsuchiya   | ISH-0227            | 1124             |

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WASHINGTON, DC 20036

EXAMINER

RACHUBA, MAURINA T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3723

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/523,976

Applicant(s)

TSUCHIYA, TOSHIHIRO

Examiner

M Rachuba

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 September 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.  
4a) Of the above claim(s) 6-8 is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 4 and 5 is/are rejected.  
7) ☒ Claim(s) 2 and 3 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 08 February 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 2/8/05.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Election/Restrictions***

1. Claims 6-8 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 01 September 2006.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1, as broadly set forth, is rejected under 35 U.S.C. 102(b) as being anticipated by JP 11 188619 or Banks 4,373,991.

4. '619, see attached English language abstract, teaches a wafer polishing method using a polishing apparatus which comprises a rotatable table **20** having a polishing cloth adhered thereon and a polishing head **60** equipped with a wafer holding plate opposing to the table and in which the back surface of the wafer is held by a holding surface of the wafer holding plate and the front surface of the wafer is pressed to and polished by the polishing pad, comprising a polishing step of polishing the front surface of the wafer to a predetermined total polishing stock removal without changing the polishing apparatus, wherein the polishing step is divided into plural sub-steps and a holding position of the wafer in a subsequent sub-step is different from a holding position of the wafer in a previous sub-step ("At the same time, when the wafer 10 is

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polished by moving the wafer 10 and the surface plate 20 for polishing relatively, the pressurizing head 30 is separated from the carrier plate 12, on the way of the polishing process, and it is abutted again, so as to slip the abutting position of the pressurizing head 30 to the carrier plate 12, at least one time.”).

5. '991 teaches a wafer polishing device and method using a using a polishing apparatus which comprises a rotatable table 42 having a polishing cloth adhered thereon and a polishing head 10 equipped with a wafer holding plate opposing to the table and in which the back surface of the wafer is held by a holding surface of the wafer holding plate and the front surface of the wafer is pressed to and polished by the polishing pad, comprising a polishing step of polishing the front surface of the wafer to a predetermined total polishing stock removal without changing the polishing apparatus; wherein the polishing step is divided into plural sub-steps and a holding position of the wafer in a subsequent sub-step is different from a holding position of the wafer in a previous sub-step. Here, as the wafer is free to rotate relative to the head via the fluid bearing, the examiner considers that the polishing step is divided into plural sub-steps (with each partial rotation of the wafer relative to the head), as the holding position in a subsequent sub-step is different than that of a previous sub-step.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11 188619 or Banks 4,373,991 in view of Hattori et al, 6,372,593. Neither '619, nor '991 disclose that the wafer is an SOI wafer. '593 teaches that it is old and well known to use chemical mechanical polishing to planarize a SOI wafer. It would have been obvious to one of ordinary skill in the art to have provided '619 or '991 with the work piece taught by '593, as one of many different types of wafers that are normally planarized using chemical mechanical polishing, see column 2 lines 63-67, to prevent defects in the bonding layer of the SOI wafer.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 11 188619 or Banks 4,373,991. The examiner considers it inherent to the method disclosed by each of the applied references that the polishing stock removal in each sub-step is set to a value obtained by dividing the total removal by the number of sub-steps. '619 teaches allowing the wafer to change position relative to the head at least once, therefore the total removal of stock is divided between each position, and therefore each sub-step. '991 teach letting the wafer rotate freely, therefore the total removal of stock is divided between each sub-step, or each change of position of the wafer relative to the head.

***Allowable Subject Matter***

9. Claims 2 and 3 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art of record does not disclose or fairly teach setting a predetermined angle of position obtained by diving the outer

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peripheral waviness of the wafer by the number of sub-steps, or by setting the angle to  $\frac{1}{2}$  of the outer peripheral waviness of the wafer. '619 appears to allow for random movement, as does '991.

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Other similar methods are cited of interest.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M Rachuba whose telephone number is 571-272-4493. The examiner can normally be reached on Monday-Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph Hail can be reached on 571-272-4485. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M Rachuba  
Primary Examiner  
Art Unit 3723

